

S  
353.92864  
H3H  
1956

STATE DOCUMENTS

HIGHWAY-USER TAX SCHEDULES  
RECOMMENDED IN OTHER STATE  
HIGHWAY FINANCE STUDIES  
COMPARED WITH  
MONTANA



A REPORT TO THE MONTANA  
FACT FINDING COMMITTEE ON HIGHWAYS  
BY  
WM. L. HALL

Montana State Library



3 0864 1004 7846 3

HIGHWAY-USER TAX SCHEDULES RECOMMENDED  
IN STATE HIGHWAY FINANCE STUDIES

(Text in capital letters are comments by Wm. L. Hall, regarding Montana studies. Text in lower case letters are direct quotes from a paper by G. P. St. Clair and Hugo Duzan appearing in Public Roads magazine of October, 1956)

UPON THE COMPLETION OF THE HIGHWAY COST ALLOCATION WORK, THE MONTANA FACT FINDING COMMITTEE WAS CONCERNED THAT THE USER RATES ESTABLISHED MIGHT BE TOO HIGH OR TOO LOW IN RELATION TO SIMILAR STUDIES THAT HAD BEEN DONE IN RECENT YEARS IN OTHER STATES. THERE IS, OF COURSE, NO REASON THAT MONTANA'S ALLOCATION MUST FOLLOW PRECISELY THAT OF OTHER STATES. MONTANA'S COSTS ARE PECULIAR TO THE TOPOGRAPHY AND LIMITED HIGHWAY USAGE FOUND IN THIS STATE, AND COSTS MUST BE PAID IF WE ARE TO HAVE THE HIGHWAYS. NEVERTHELESS THERE IS SOME COMPULSION TO MAKE COMPARISONS TO BE SURE THAT GENERAL TRENDS ARE FOLLOWED AND REASONABLENESS IS ASSURED. IT SEEMED THERE WAS INSUFFICIENT TIME AVAILABLE TO MAKE A COMPARATIVE STUDY WITH FINDINGS IN OTHER STATES UNTIL A WINDFALL OCCURRED IN THE FORM OF A RECENTLY PUBLISHED ARTICLE WHICH PROVIDED JUST SUCH A COMPARISON FOR 9 STATES. (HIGHWAY USER TAX SCHEDULES RECOMMENDED IN STATE HIGHWAYS FINANCE STUDIES, PUBLIC ROADS, OCTOBER, 1956 REPORTED BY G. P. ST. CLAIR AND HUGO DUZAN.)

THIS COMPARISON PROVIDED ALL THE DATA NECESSARY TO PERMIT A COMPARABLE ANALYSIS OF MONTANA'S PROPOSED TAX STRUCTURE WITH THE 9 INDIVIDUAL STATE'S AND WITH MEDIAN FIGURES FOR THE SAME GROUP. SUCH A COMPARISON HAS BEEN MADE AND IS PROVIDED HEREIN. THE TEXT OF THE

A very faint, blurry background image of a classical building with multiple columns and a triangular pediment at the top.

Digitized by the Internet Archive  
in 2010 with funding from  
Montana State Library

<http://www.archive.org/details/highwayusertaxsc1956hall>

ST. CLAIR - DUZAN ARTICLE IS QUOTED LIBERALLY AND MANY OF THE TABLES AND CHARTS HAVE BEEN USED AS THEY APPEARED IN THE ARTICLE EXCEPT FOR THE ADDITION OF MONTANA. MONTANA'S PROPOSED AND EXISTING RATE STRUCTURE HAS BEEN EVALUATED ON THE BASIS OF THE VEHICLE CHARACTERISTICS USED IN THE COMPARATIVE STUDY AND AS SHOWN ON TABLE 1. MONTANA'S DATA HAS NOT BEEN USED IN ARRIVING AT A NEW MEDIAN ALTHOUGH THE EFFECT OF SUCH INCLUSION WAS EXPLORED. THE DIFFERENCE IN MEDIAN VALUES WOULD HAVE BEEN MINOR IN ALL INSTANCES.

THE ST. CLAIR - DUZAN FINDINGS FOR THE 9 STATES ( 11 STATES IN THE CASE OF EXISTING TAX STRUCTURE) IS QUOTED BELOW WITH APPROPRIATE INSERTS AND COMMENTS EVALUATING THE POSITION OF MONTANA IN THE DATA.

"The findings of highway tax studies made by State personnel or consultants in individual States throw some light on the vexatious question of the relative tax responsibility of vehicles of different sizes and weights. Although studies have been made in numerous States, in only nine of them were the findings expressed in terms such that a comparative analysis could readily be made. These States are California, Colorado, Illinois, Louisiana, Minnesota, New York, Ohio, Utah, and Washington. The tables and charts which follow deal with the study findings in those nine States and with comparative data on actual payments under existing user-tax laws.

#### VEHICLES SELECTED FOR COMPARISON

"In order to run the gamut of motor-vehicle sizes and weights, eight typical vehicles or vehicle combinations shown in silhouette



below were selected. These vehicles and their assumed operating conditions are briefly described in table 1.

"The maximum gross weights chosen are typical of the weights for which vehicles and combinations of these several types would be registered. Annual mileages also are reasonably close to average. For purposes of State-to-State comparison it is assumed that a vehicle travels its entire mileage in the particular State. It is recognized that over-the-road trucking combinations may divide their actual travel among several States, and also that such vehicles may have much greater total mileages than those used in the comparison. The values chosen, although not averages of those used in the studies, are considered moderate and fair. For uniformity of comparison all of the vehicles were taken as gasoline-powered.

"In calculating required tax payments for the eight selected vehicles from the schedules recommended by the investigators, the effort was made to render an accurate interpretation of the findings of the tax studies in each of the nine States. Values were calculated by two methods. First, the required tax payments for each vehicle were computed on the basis of the values of vehicle weight, annual mileage, and miles per gallon used in each State Study." THESE CALCULATIONS ARE NOT SHOWN IN THIS ARTICLE. THERE IS CONSIDERABLE VARIATION IN VALUES DEVELOPED FROM STATE TO STATE AND UNIFORMITY IS DESIRABLE FOR THIS COMPARISON. "The second method, which affords direct State-to-State comparisons, utilizes the values of maximum gross weight, annual travel, and miles per gallon given in table 1.



It is believed that the resulting comparisons are accurate and fair; but it is not unlikely that minor differences in interpretation would occur in similar calculations made by others.

" It was desired to present a comparison of the tax-study findings in these nine States with the taxes that would have been paid by the same vehicles under the user-tax rates prevailing in 1955. For this comparison two more States were added to the list; Oregon, which has a tax structure based on the findings of incremental studies; and Idaho, which has a mileage tax similar in coverage to those in Colorado, New York, Ohio, and Oregon." RATES FOR 1956 IN MONTANA HAVE BEEN USED BECAUSE OF THE INCREASE IN GROSS VEHICLE WEIGHT FEES EFFECTIVE THIS YEAR.

"In each of the tables and charts presented the user-tax payments shown for a given vehicle were obtained by adding (1) the registration fee or weight tax that the vehicle would pay under the tax-study recommendations (or existing law); (2) the gasoline tax that would be paid under the assumed annual mileage and miles per gallon; and (3) the amount of third-structure tax (such as the New York weight-distance tax or the Ohio axle-mile tax) that would be required. Values are expressed in three ways as follows; (1) Tax payment per year, (2) tax payment per mile of travel, and (3) tax payment per gross ton-mile (obtained by dividing the tax payment by the product of maximum gross weight and annual mileage). The latter is a rather controversial figure, as there is no general agreement that gross ton-miles are a true measure of tax responsibility. Values are also expressed in the form of indexes, the index value for the passenger car being 1.00 in



Table 1. - Characteristics of vehicles selected for tax-study comparisons

| Vehicle number | General description                | Empty weight | Maximum gross weight                | Annual travel |           | Ton-miles at maximum gross weight | Fuel consumption rate |       |      |
|----------------|------------------------------------|--------------|-------------------------------------|---------------|-----------|-----------------------------------|-----------------------|-------|------|
|                |                                    |              |                                     | Freight       | Passenger |                                   |                       |       |      |
| 1              | Passenger car                      | 2,492        | 2 <sup>1</sup> / <sub>2</sub> 4,982 | 1,490         | 9,400     | 1,110                             | 18,951                | 1.00  | 16.7 |
| 2              | 1-ton truck                        | 3,266        | 4,990                               | 1,26          | 14,000    | 2,76                              | 19,200                | 1.06  | 15.6 |
| 3              | 2 axle, 6-tire truck               | 7,675        | 19,000                              | 4,07          | 10,000    | 1,230                             | 35,000                | 2.27  | 24.6 |
| 4              | Bus                                | 20,565       | 27,000                              | 6,96          | 50,000    | 5,40                              | 57,000                | 37.19 | 5.3  |
| 5              | 1 axle tractor-semitrailer         | 15,215       | 40,000                              | 10,30         | 30,000    | 6,40                              | 70,000                | 12.10 | 4.3  |
| 6              | 4 axle truck-trailer               | 19,050       | 50,000                              | 12,00         | 41,000    | 5,10                              | 1,00,000              | 5.40  | 4.2  |
| 7              | 5 axle truck trailer               | 17,908       | 60,000                              | 17,52         | 51,000    | 5,30                              | 1,00,000              | 4.18  | 3.5  |
| 8              | 5 axle tractor-semitrailer-trailer | 27,445       | 72,000                              | 18,55         | 51,000    | 5,30                              | 1,00,000              | 3.72  | 3.4  |

1 All vehicles were gasoline-powered.  
 2 Six passengers at 150 pounds each assumed.

Table 2. - Median road-user tax payments for selected vehicles  
(all States except Montana)

| Basis for payment | Single-unit trucks         |                  |                             | Truck combinations |                     |                  | No. of<br>Tractor-<br>semi-<br>trailer-<br>trailer |
|-------------------|----------------------------|------------------|-----------------------------|--------------------|---------------------|------------------|--|
|                   | No. 1:<br>Passenger<br>car | No. 2:<br>Pickup | No. 3:<br>2 axle,<br>6-tire | No. 4:<br>Bus      | Tractor-semitrailer |                  |  |
|                   |                            |                  |                             |                    | No. 5:              | No. 6:<br>3-axle | No. 7:<br>Truck-<br>trailer                        |
|                   |                            |                  |                             |                    |                     |                  |  |

Part 1. - Total User-Tax Payments under Tax-Study recommendations in 7 States

| Payments per year:         | 1/    |       |       |       |       |       |       |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|
| Median payments--dollars-- | 40    | 46    | 207   | 1,009 | 965   | 1,229 | 1,710 |
| Index--                    | 1.00  | 1.15  | 5.18  | 25.23 | 24.13 | 30.73 | 42.75 |
| Payments per mile:         |       |       |       |       |       |       |       |
| Median payments--cents--   | 0.440 | 0.575 | 2,070 | 2,038 | 2,560 | 3,073 | 3,419 |
| Index--                    | 1.00  | 1.34  | 4.81  | 6.59  | 5.26  | 7.15  | 7.35  |
| Payments per ton-mile:     |       |       |       |       |       |       |       |
| Median payments--cents--   | 0.222 | 0.240 | 0.218 | 0.119 | 0.127 | 0.123 | 0.100 |
| Index--                    | 1.00  | 1.04  | 0.98  | 0.57  | 0.57  | 0.55  | 0.45  |

Part 2. - Total User-Tax Payments at 1956 rates in 11 States 1/

| Payments per year:         | 1/    |       |       |                    |       |       |       |
|----------------------------|-------|-------|-------|--------------------|-------|-------|-------|
| Median payments--dollars-- | 41    | 48    | 102   | 866                | 881   | 1,220 | 1,860 |
| Index--                    | 1.00  | 1.17  | 4.64  | 21.12              | 21.49 | 29.76 | 45.37 |
| Payments per mile:         |       |       |       |                    |       |       |       |
| Median payments--cents--   | 0.441 | 0.600 | 1.420 | 1,732              | 2,312 | 1,050 | 1,720 |
| Index--                    | 1.00  | 1.36  | 4.13  | 1.73               | 5.26  | 6.92  | 8.44  |
| Payments per ton-mile:     |       |       |       |                    |       |       |       |
| Median payments--cents--   | 0.222 | 0.250 | 0.192 | 0.120 <sup>b</sup> | 0.116 | 0.122 | 0.109 |
| Index--                    | 1.00  | 1.10  | 0.85  | 0.56               | 0.51  | 0.54  | 0.46  |

Part 3. - Total User-Tax Payments under Tax Study recommendations in Montana

| Payments per year:         | 1/    |       |       |       |       |       |       |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|
| Median payments--dollars-- | 49    | 52    | 160   | 795   | 914   | 1,577 | 2,660 |
| Index--                    | 1.00  | 1.06  | 1.27  | 16.22 | 18.65 | 32.18 | 54.29 |
| Payments per mile:         |       |       |       |       |       |       |       |
| Median payments--cents--   | 0.527 | 0.649 | 1.97  | 1.21  | 2,406 | 3,962 | 5,320 |
| Index--                    | 1.00  | 1.23  | 1.03  | 1.02  | 4.57  | 7.48  | 10.09 |
| Payments per ton-mile:     |       |       |       |       |       |       |       |
| Median payments--cents--   | 0.272 | 0.270 | 0.168 | 0.118 | 0.120 | 0.158 | 0.157 |
| Index--                    | 1.00  | 0.99  | 0.62  | 0.44  | 0.64  | 0.56  | 0.58  |

Part 4. - Total User-Tax Payments at 1956 rates in Montana

| Payments per year:         | 1/    |       |       |       |       |       |       |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|
| Median payments--dollars-- | 49    | 52    | 160   | 775   | 715   | 227   | 1,531 |
| Index--                    | 1.00  | 1.06  | 1.26  | 16.22 | 18.65 | 32.18 | 53.65 |
| Payments per mile:         |       |       |       |       |       |       |       |
| Median payments--cents--   | 0.527 | 0.649 | 1.97  | 1.21  | 2,406 | 3,962 | 5,320 |
| Index--                    | 1.00  | 1.23  | 1.03  | 1.02  | 4.57  | 7.48  | 10.77 |
| Payments per ton-mile:     |       |       |       |       |       |       |       |
| Median payments--cents--   | 0.272 | 0.270 | 0.167 | 0.118 | 0.120 | 0.158 | 0.158 |
| Index--                    | 1.00  | 0.99  | 0.62  | 0.44  | 0.64  | 0.56  | 0.58  |

1/ The 9 States included in part 1 plus Oregon, which has a tax structure based on the findings of incremental studies, and Idaho, which has a mileage tax similar in coverage to those in Colorado, New York, Ohio, and Oregon.



all cases." BECAUSE OF THE RELATIVELY HIGH PASSENGER CAR CHARGES IN MONTANA (A RESULT OF HIGHER FUEL TAX PAYMENTS) THE COMPARISON BY INDICES IS SOMEWHAT MORE SIGNIFICANT THAN DOLLAR VALUES.

"Since vehicles do not travel fully loaded all of the time, average operating gross weights might well have been used instead of maximum gross weights to compute the tax payments per ton-mile. Average operating weights, however, are affected by the type of operation and those for vehicles of a given maximum gross weight may vary widely. Maximum gross vehicle weight, which is the registration basis in the majority of States and represents the potential of the vehicle, was therefore chosen.

#### MEDIAN VALUES OF TAX-STUDY RECOMMENDATIONS

"The first question to be asked about these State tax-study findings is, "What is the Trend?" As arithmetic averages are likely to be deceptive in such a case, it was decided to compare the median <sup>1/</sup> values, from among the findings in these nine States, of the user-tax payments required of each of the eight selected vehicles. These values, which are given in the upper section (part 1) of table 2 and shown graphically in figure 1, are indicative of the middle ground of tax-study findings.

"Running quickly over the top line of table 2, we find the

---

<sup>1/</sup> The median is the middle value of a series arranged in order of magnitude; for example, in the series of numbers, 27, 36, 40, 51, 63, the median is 40. In the case of an even numbered series the average of the two middle values is taken.



FIGURE 1

MEDIAN USER TAX PAYMENTS UNDER TAX STUDY  
RECOMMENDATIONS IN 9 STATES COMPARED WITH MONTANA

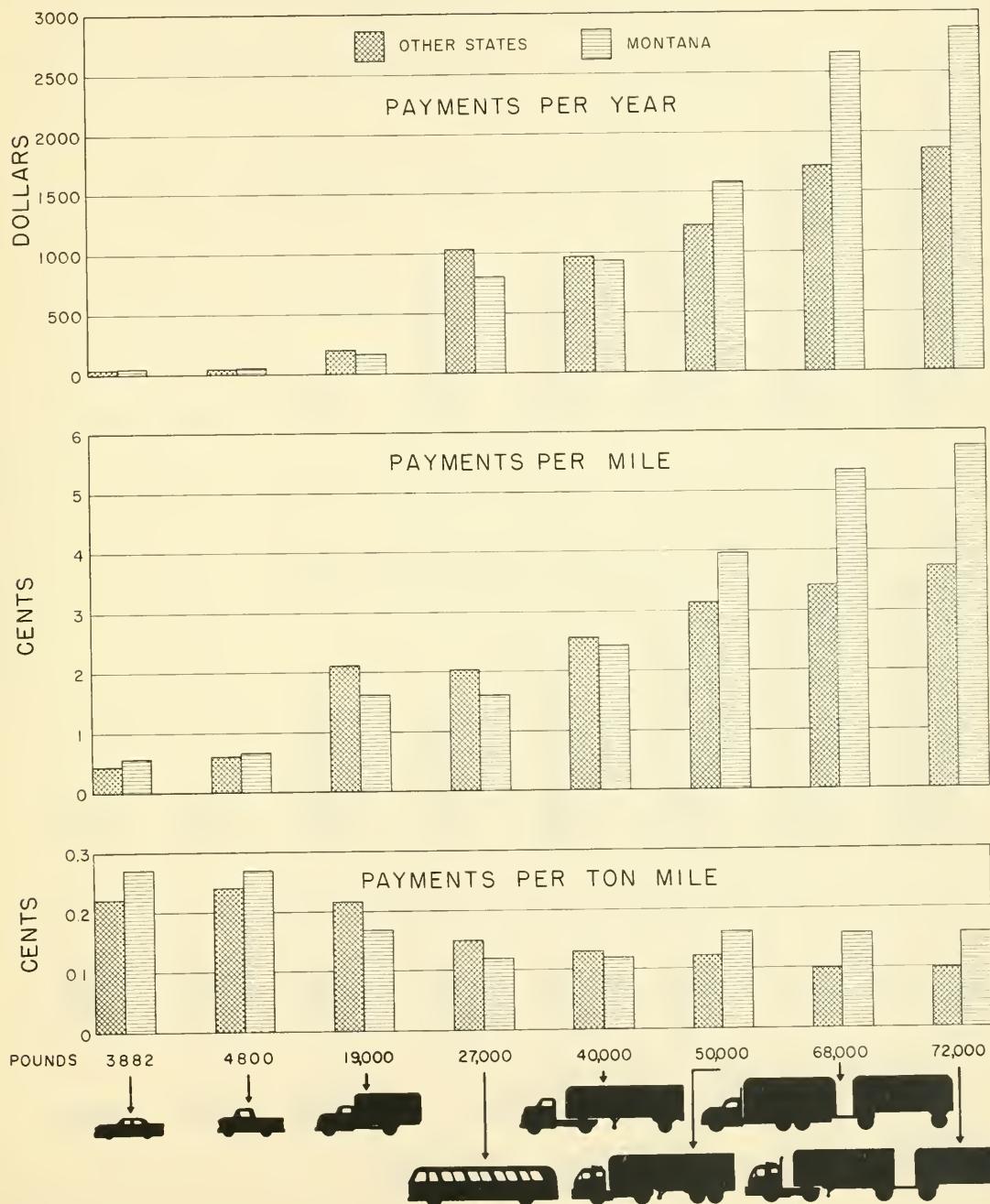
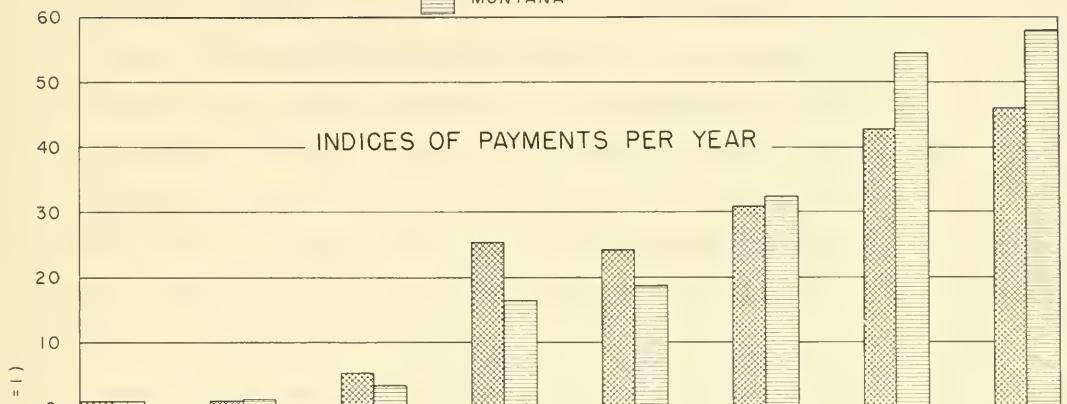




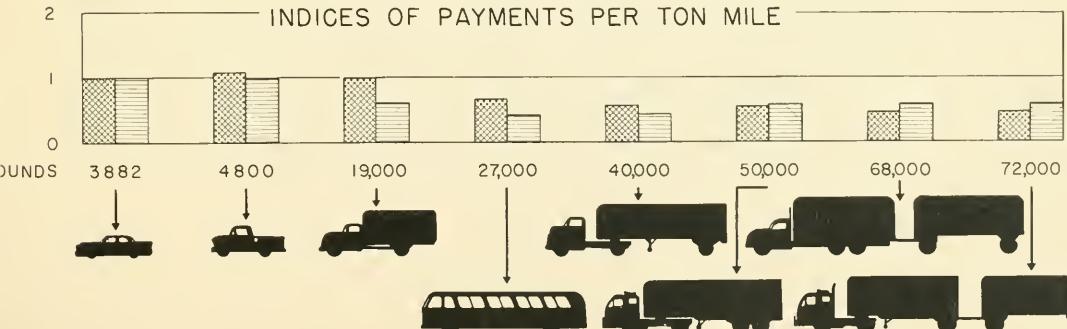
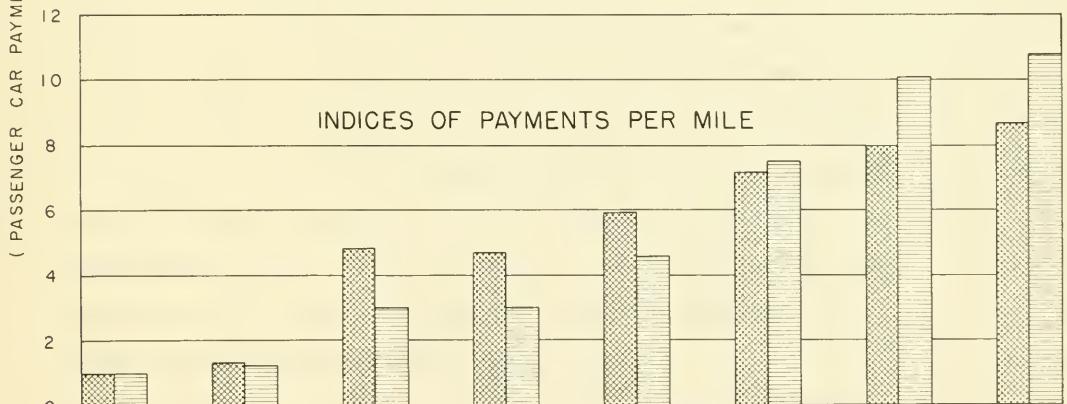
FIGURE I-A  
INDICES UNDER TAX STUDY RECOMMENDATIONS  
IN 9 STATES COMPARED WITH MONTANA

[Hatched Box] OTHER STATES

[Cross-hatched Box] MONTANA

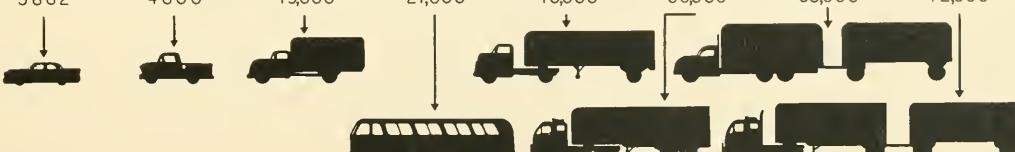


( PASSENGER CAR PAYMENTS = 1 )



POUNDS

3882      4800      19,000      27,000      40,000      50,000      68,000      72,000





middle values of tax-study findings ranging from \$40 per year for the passenger car to \$207 per year for the 2-axle, 6-tire truck; \$1,009 for the bus; \$1,229 for the 4-axle, 50,000-pound tractor-semitrailer; and \$1,836 for the 5-axle, 72,000-pound tractor-semitrailer-trailer combination. Expressed in terms of index values the range is from 1.00 for the passenger car to 45.90 for the biggest combination."

COMPARISON OF THESE MEDIAN FIGURES WITH PROPOSED MONTANA SCHEDULES AND 1956 MONTANA RATES, BOTH BASED ON ASSUMPTIONS IN TABLE 1 ARE PROVIDED IN PARTS 3 AND 4 OF TABLE 2.

"Expression of the tax-study findings in terms of required tax payment per mile of travel eliminates the effect of the greater mileages traveled by the heavier vehicles, and thus narrows the range of variation. The median values of recommended tax payments per mile are found to vary from 0.43 cents in the case of the passenger car to 3.67 cents for the biggest combination. In terms of index values the range is from 1.00 to 8.54." COMPARABLE FIGURES FOR MONTANA STUDY RECOMMENDATIONS RANGE FROM 0.53 CENTS PER MILE FOR PASSENGER CARS TO 5.68 CENTS FOR THE BIGGEST COMBINATION INCLUDED. IN TERMS OF INDEX THE VALUES RANGE FROM 1 TO 10.78.

"By the expression of the tax-study findings in terms of recommended tax payments per gross ton-mile, the trend-line is caused to decrease rather than increase with weight of vehicle. Although a number of the tax studies in these nine States were based on the gross ton-mile theory, which holds that user taxes should be paid in



proportion to the product of weight and distance traveled, there was a tendency for the investigators to mitigate their theoretical findings somewhat when faced with the task of devising and recommending an actual schedule of taxation." A TON MILE ALLOCATION OF COSTS WAS MADE IN MONTANA BUT THE INCREMENTAL ALLOCATION WAS ACTUALLY USED IN DEVISING SUGGESTED TAX RATES. THE RATES SO DEVISED ARE SOMEWHAT LOWER FOR ALL VEHICLES EXCEPT PASSENGER CARS AND THE SMALLEST TRUCKS THAN THEY WOULD HAVE BEEN UNDER TON-MILE ALLOCATIONS.

"The downward trend in payments per ton-mile under tax-study recommendations is shown very plainly in the bottom panel of figure 1. If the gross ton-mile concept were fully accepted this trend would be horizontal.

#### MEDIAN USER-TAX PAYMENTS AT 1955 RATES

" The lower portion of (Part Two) table 2 gives the median values, for the same nine States plus Idaho and Oregon, of the user-tax-payments required of the eight selected vehicles under the tax schedules prevailing in 1955. The actual values are shown graphically in figure 2." COMPARABLE MONTANA RATES ARE SHOWN IN PART 4 OF THE SAME TABLE.

"The median values of actual required tax payments show similar trends to those of the tax-study recommendations, the values being higher in some cases and lower in others. Although the existing tax schedules in most of the nine tax-study States impose lower requirements on the heavy truck combinations than those recommended, the median values fail to reflect this tendency. This is largely due to



Table 4 - Total user-tax payments per year ( in dollars) for selected vehicles under tax-study recommendations

| State                       | Year<br>tax<br>study<br>published | Single-unit trucks        |       |              |       |               |       |              |       | Truck combinations       |       |              |       |              |       |              |       | No. 7: Truck-<br>trailer |       |              |       | No. 8: Tractor-<br>semitrailer-<br>trailer |       |              |       |       |
|-----------------------------|-----------------------------------|---------------------------|-------|--------------|-------|---------------|-------|--------------|-------|--------------------------|-------|--------------|-------|--------------|-------|--------------|-------|--------------------------|-------|--------------|-------|--|-------|--------------|-------|-------|
|                             |                                   | No. 1: Passen-<br>ger car |       |              |       | No. 2: Pickup |       |              |       | No. 3: 2-axle,<br>6-tire |       |              |       | No. 4: Bus   |       |              |       | Tractor-semitrailer      |       |              |       | No. 7: Truck-<br>trailer                   |       |              |       |       |
|                             |                                   | Pay-<br>ment              | Index | Pay-<br>ment | Index | Pay-<br>ment  | Index | Pay-<br>ment | Index | Pay-<br>ment             | Index | Pay-<br>ment | Index | Pay-<br>ment | Index | Pay-<br>ment | Index | Pay-<br>ment             | Index | Pay-<br>ment | Index | Pay-<br>ment                               | Index | Pay-<br>ment | Index |       |
| California-----             | 1946                              | T                         | 25    | 1.00         | 29    | 1.16          | 128   | 5.12         | 170   | 36.00                    | 105   | 35.40        | 1,135 | 45.40        | 1,672 | 66.80        | 1,747 | 73.40                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Colorado <sup>a</sup> ----- | 1950                              | T                         | 55    | 1.00         | 51    | 5.31          | 292   | 5.31         | 1,769 | 11.80                    | 1,423 | 44.15        | 2,112 | 56.50        | 5,126 | 73.20        | 5,392 | 70.40                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Colorado <sup>b</sup> ----- | 1950                              | T                         | 52    | 1.00         | 49    | 5.16          | 292   | 5.42         | 1,665 | 35.02                    | 2,265 | 41.56        | 2,321 | 50.17        | 1,941 | 73.10        | 1,998 | 70.60                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Illinois -----              | 1946                              | T                         | 40    | 1.00         | 51    | 1.20          | 264   | 4.60         | 972   | 26.30                    | 1,101 | 27.04        | 1,261 | 31.03        | 1,477 | 30.30        | 1,500 | 37.50                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Louisiana-----              | 1955                              | IC                        | 46    | 1.00         | 46    | 1.00          | 230   | 4.70         | 1,009 | 21.73                    | 934   | 20.40        | 1,217 | 26.66        | 1,690 | 36.52        | (4)   | -----                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- |       |
| Minnesota-----              | 1954                              | I                         | 52    | 1.00         | 47    | 1.00          | 207   | 1.98         | 2,861 | 39.67                    | 1,234 | 21.73        | 1,133 | 35.26        | (4)   | -----        | (4)   | -----                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- |       |
| New York <sup>a</sup> ----- | 1950                              | T                         | 67    | 1.00         | 65    | 1.10          | 207   | 6.11         | 1,255 | 26.70                    | 1,560 | 32.77        | 2,639 | 52.15        | 1,010 | 45.93        | (4)   | -----                    | (4)   | -----        | ----- | -----                                      | ----- | -----        | ----- |       |
| New York <sup>b</sup> ----- | 1950                              | T                         | 22    | 1.00         | 26    | 1.18          | 106   | 4.02         | 549   | 24.95                    | 610   | 21.73        | 1,010 | 45.93        | (4)   | -----        | (4)   | -----                    | ----- | -----        | ----- | -----                                      | ----- | -----        |       |       |
| Ohio-----                   | 1951                              | S                         | 38    | 1.00         | 50    | 1.53          | 169   | 4.45         | 1,107 | 29.13                    | 1,016 | 26.74        | 1,351 | 35.55        | 1,651 | 43.45        | 2,310 | 60.79                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Ohio-----                   | 1953                              | I                         | 39    | 1.00         | 70    | 1.97          | 208   | 5.33         | 1,39  | 35.62                    | 996   | 25.54        | 1,353 | 34.69        | 2,327 | 59.67        | 2,111 | 54.31                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Utah-----                   | 1950                              | T                         | 33    | 1.00         | 30    | 1.09          | 157   | 4.92         | (7)   | -----                    | 836   | 25.33        | 1,156 | 35.03        | 1,739 | 32.70        | 1,425 | 55.30                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Washington-----             | 1948                              | T                         | 40    | 1.00         | 36    | 1.20          | 177   | 4.41         | 912   | 26.55                    | 770   | 19.75        | 1,061 | 26.55        | 1,874 | 44.85        | 1,766 | 44.15                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Montana-----                | 1956                              | I                         | 69    | 1.00         | 52    | 1.08          | 160   | 3.27         | 795   | 16.22                    | 914   | 18.65        | 1,577 | 37.10        | 2,650 | 54.29        | 2,139 | 57.34                    | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |

1 Method used to allocate tax responsibility indicated thus: 1 Incremental; IC recommendations based on findings of incremental and cost-function solutions; S Standard cost; T Ton-mile.

2 Motor-fuel tax rate of 8.5 cents per gallon and low registration fees.

3 Motor-fuel tax rate of 6.5 cents per gallon and high registration fees.

4 Vehicle combination not permitted by State size and weight regulations.

5 Maximum expenditure program with motor-fuel rate of 4 cents per gallon.

6 Continuation of "Current" (1949) expenditure level with motor-fuel tax rate of 3 cents per gallon.

7 No recommendation.

H Figures in these lines not used in arriving at median values for Table 2.

Table 5 - Total user-tax payments per mile ( in cents) for selected vehicles under tax-study recommendations

| State                       | Year<br>tax<br>study<br>published | Single-unit trucks        |       |              |       |               |       |              |        | Truck combinations       |       |              |       |              |        |              |        | No. 8: Tractor-<br>semitrailer-<br>trailer |       |              |       | No. 8: Tractor-<br>semitrailer-<br>trailer |       |              |       |       |
|-----------------------------|-----------------------------------|---------------------------|-------|--------------|-------|---------------|-------|--------------|--------|--------------------------|-------|--------------|-------|--------------|--------|--------------|--------|--|-------|--------------|-------|--|-------|--------------|-------|-------|
|                             |                                   | No. 1: Passen-<br>ger car |       |              |       | No. 2: Pickup |       |              |        | No. 3: 2-axle,<br>6-tire |       |              |       | No. 4: Bus   |        |              |        | Tractor-semi-<br>trailer                   |       |              |       | No. 7: Truck-<br>trailer                   |       |              |       |       |
|                             |                                   | Pay-<br>ment              | Index | Pay-<br>ment | Index | Pay-<br>ment  | Index | Pay-<br>ment | Index  | Pay-<br>ment             | Index | Pay-<br>ment | Index | Pay-<br>ment | Index  | Pay-<br>ment | Index  | Pay-<br>ment                               | Index | Pay-<br>ment | Index | Pay-<br>ment                               | Index | Pay-<br>ment | Index |       |
| California-----             | 1946                              | T                         | 0.269 | 1.00         | 0.303 | 1.35          | 1,280 | 4.76         | 1,740  | 6.47                     | 2,329 | 8.66         | 2,838 | 10.55        | 3,344  | 12.43        | 3,694  | 13.73                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Colorado <sup>a</sup> ----- | 1950                              | T                         | 0.91  | 1.20         | 0.438 | 1.00          | 2,920 | 4.94         | 14,491 | 5.92                     | 6,376 | 10.79        | 7,780 | 11.16        | 10,252 | 17.35        | 10,744 | 17.25                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Colorado <sup>b</sup> ----- | 1950                              | T                         | 0.59  | 1.00         | 0.63  | 1.10          | 2,20  | 5.04         | 1,130  | 5.96                     | 5,961 | 10.67        | 7,303 | 11.26        | 9,602  | 17.32        | 10,196 | 18.24                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Illinois -----              | 1946                              | T                         | 0.30  | 1.00         | 0.638 | 1.04          | 2,640 | 6.14         | 1,744  | 4.52                     | 3,055 | 7.10         | 3,103 | 7.22         | 2,958  | 6.88         | 3,000  | 6.36                                       | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Louisiana-----              | 1955                              | IC                        | .475  | 1.00         | .575  | 1.16          | 2,200 | 4.44         | 2,018  | 4.00                     | 2,459 | 4.97         | 3,043 | 6.15         | 3,360  | 6.79         | (4)    | -----                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- |       |
| Minnesota-----              | 1956                              | I                         | .559  | 1.00         | .599  | 1.05          | 2,070 | 3.70         | 4,126  | 7.31                     | 3,247 | 5.01         | 4,503 | 7.20         | (4)    | -----        | (4)    | -----                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- |       |
| New York <sup>a</sup> ----- | 1950                              | T                         | .509  | 1.00         | .613  | 1.61          | 2,470 | 5.68         | 2,310  | 6.97                     | 4,053 | 7.03         | 6,598 | 13.06        | (4)    | -----        | (4)    | -----                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- |       |
| New York <sup>b</sup> ----- | 1950                              | T                         | .237  | 1.00         | .325  | 1.37          | 1,060 | 4.47         | 1,198  | 6.63                     | 1,605 | 6.77         | 2,525 | 10.65        | (4)    | -----        | (4)    | -----                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- |       |
| Ohio-----                   | 1951                              | S                         | .409  | 1.00         | .725  | 1.77          | 1,690 | 4.13         | 2,214  | 5.61                     | 2,674 | 6.56         | 3,178 | 8.26         | 3,402  | 9.07         | 4,620  | 11.30                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Ohio-----                   | 1953                              | I                         | .419  | 1.00         | .475  | 1.73          | 2,000 | 4.96         | 2,770  | 6.63                     | 2,621 | 6.26         | 3,343 | 8.07         | 4,656  | 11.11        | 4,236  | 10.11                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Utah-----                   | 1950                              | T                         | .355  | 1.00         | .459  | 1.27          | 1,590 | 4.61         | (7)    | -----                    | 2,200 | 6.20         | 2,890 | 8.14         | 3,473  | 9.00         | 4,650  | 10.28                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Washington-----             | 1948                              | T                         | .410  | 1.00         | .450  | 1.05          | 1,770 | 4.12         | 1,764  | 4.57                     | 2,079 | 4.83         | 2,653 | 6.17         | 3,748  | 7.72         | 4,832  | 9.21                                       | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- | ----- |
| Montana-----                | 1956                              | I                         | 0.527 | 1.00         | 0.649 | 1.23          | 1,597 | 3.03         | 3,02   | 2,406                    | 4.57  | 3,942        | 7.68  | 5,320        | 10.07  | 5,679        | 10.76  | -----                                      | ----- | -----        | ----- | -----                                      | ----- | -----        | ----- |       |

1 Method used to allocate tax responsibility indicated thus: 1 Incremental; IC recommendations based on findings of incremental and cost-function solutions; S Standard cost; T Ton-mile.

2 Motor-fuel tax rate of 8.5 cents per gallon and low registration fees.

3 Motor-fuel tax rate of 6.5 cents per gallon and high registration fees.

4 Vehicle combination not permitted by State size and weight regulations.

5 Maximum expenditure program with motor-fuel tax rate of 4 cents per gallon.

6 Continuation of "Current" (1949) expenditure level with motor-fuel tax rate of 3 cents per gallon.

7 No recommendation.

H Figures in these lines not used in arriving at median values for Table 2.



the inclusion of values for Idaho and Oregon, which were not in the tax-study group. Since the tax schedules in these two States are generally on the high side, the median values are definitely higher than they would have been if the two States had not been included. The median values for the 11 States are, however, indicative of the trend of required tax payments in States that have, in recent years, given definite attention to the problem of allocating user-tax-responsibility among vehicles of different sizes and weights. The ranges in required values may be expressed briefly as follows:

|                   | From passenger<br>car payment of - | To tractor-semi-<br>trailer-trailer-<br>payment of - |
|-------------------|------------------------------------|--|
| Per year-----     | \$41-----                          | \$2,214.   |
| Per mile-----     | 0.44 cents--                       | 4.43 cents.  |
| Per ton-mile----- | 0.23 cents--                       | 0.12 cents."   |

#### FOR MONTANA COMPARABLE FIGURES FOR 1956 WOULD BE

|                   | From passenger<br>car Vehicle No. 1 | To tractor-semi-<br>trailer-trailer<br>Vehicle No. 8 |
|-------------------|-------------------------------------|--|
| Per year-----     | \$49-----                           | \$1,649  |
| Per mile-----     | 0.53 cents--                        | 3.30 cents.  |
| Per ton-mile----- | 0.27 cents--                        | 0.09 cents.  |

#### STATE-BY-STATE COMPARISONS OF TAX STUDY RECOMMENDATIONS

"The data on tax-study recommendations for the nine States for which comparable data were available are presented in tables 3, 5, and 6, the values being given respectively in terms of tax payments per year, per mile, and per ton-mile." THE LAST LINE OF EACH OF THESE THREE TABLES INCLUDES COMPUTED DATA FOR MONTANA, MAKING A 10 STATE



FIGURE 2

# MEDIAN USER TAX PAYMENTS AT 1955 RATES IN ELEVEN STATES COMPARED WITH 1956 RATES IN MONTANA

(II STATES INCLUDE 9 STATES WHICH TAX STUDY RECOMMENDATIONS  
ARE REPORTED IN FIGURE I PLUS IDAHO AND OREGON)

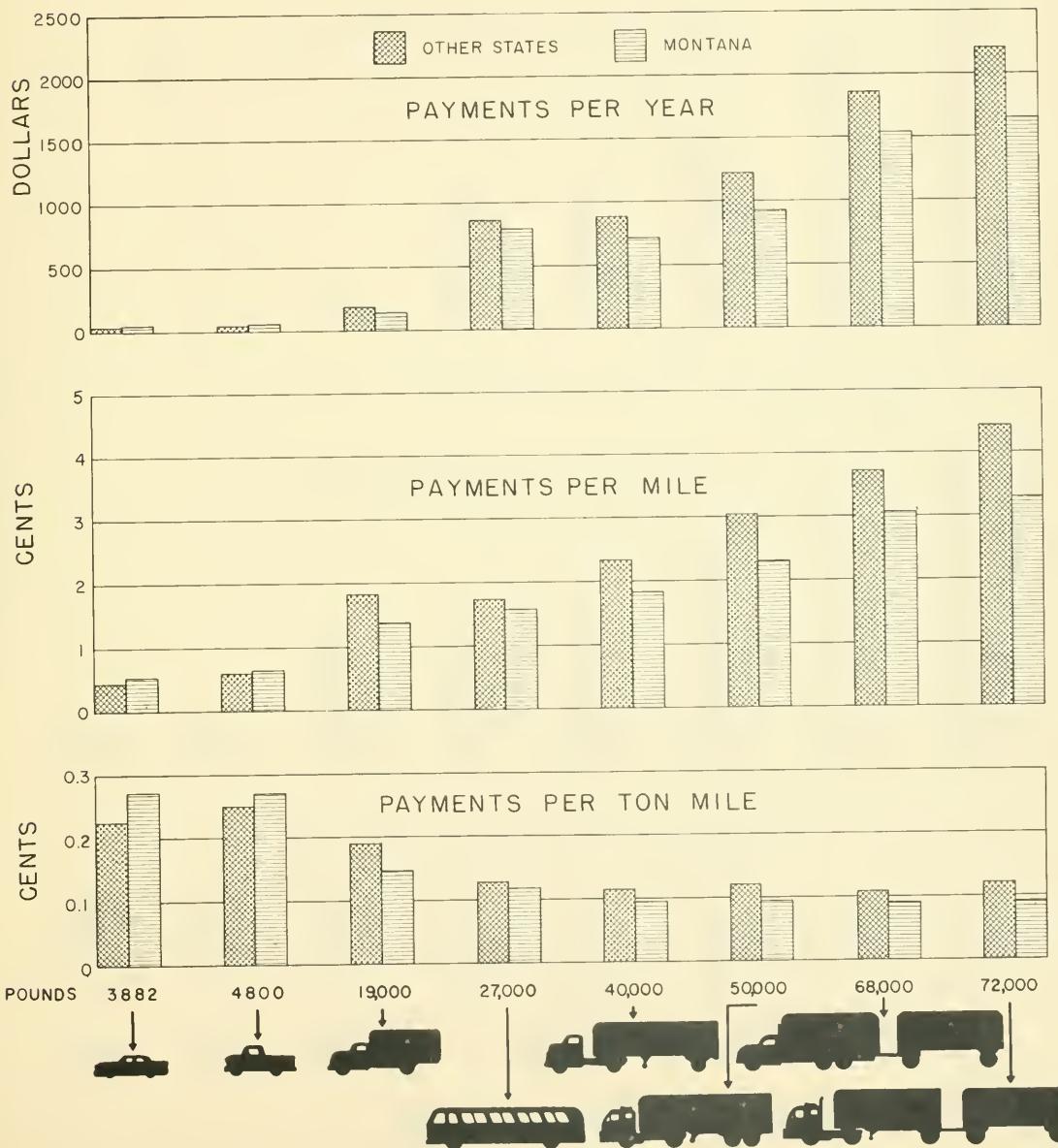
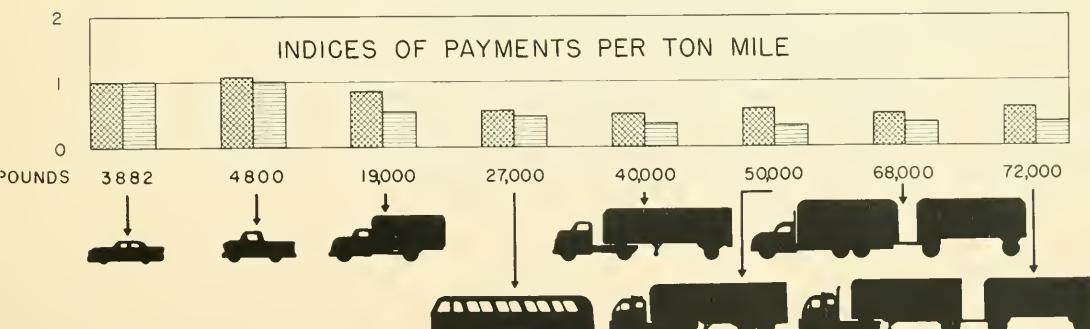
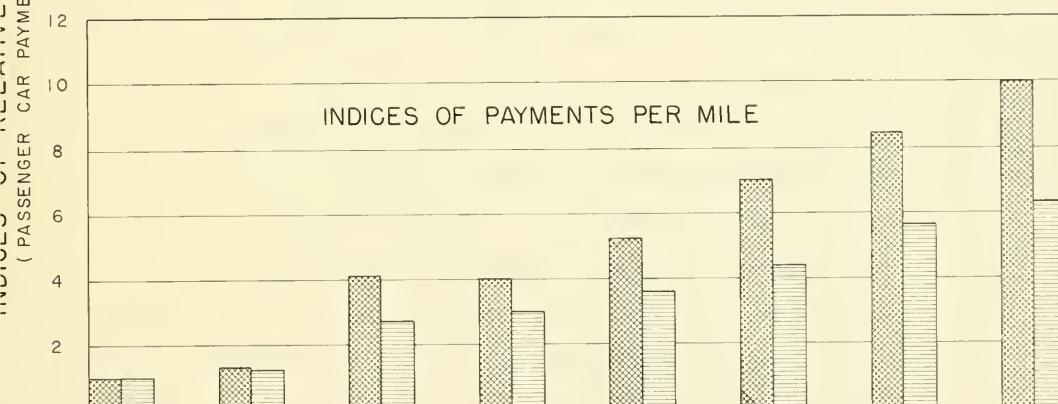
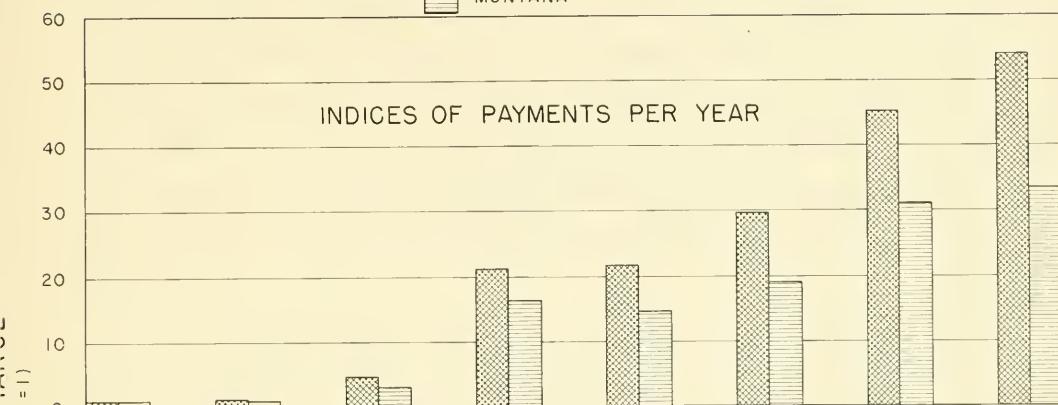




FIGURE 2 - A  
 INDICES UNDER TAX STUDY RECOMMENDATIONS  
 IN 11 STATES COMPARED WITH MONTANA 1956

OTHER STATES  
 MONTANA





PRESENTATION. "In the third column of each table there is given a series of symbols indicating for each State the type of tax study or studies on which the findings in that State were based. As indicated by the symbol "T" the majority of studies were based on the gross ton-mile concept, previously discussed. Of the two studies made in Ohio the one symbolized "S" was conducted by the standard-cost method which, as applied to motor-vehicle taxation, was<sup>a</sup>/modified ton-mile solution.

"The incremental method, denoted by the symbol "I" and used in Louisiana, Minnesota, and Ohio," AND MONTANA "is based on the concept that successive increments of highway cost are occasioned by vehicle groups of successively greater size and weight. The cost-function method, which was combined with an incremental study to produce the Louisiana findings, divides highway costs into three groups: (1) Those assignable on a per-vehicle basis, (2) those assignable on a per-mile basis, and (3) those assignable on a weight or ton-mile basis.

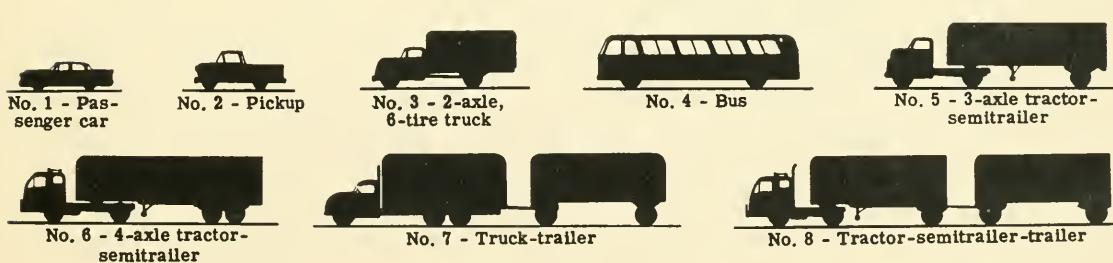
"It will be noted that two sets of findings are reported for Colorado and New York, as well as for Ohio. Since the investigators in both Colorado and New York offered several alternatives and expressed no decided preference for any one of them,two proposals were selected to illustrate the findings in each of those States. In the Colorado case two different assumptions were made regarding the relative magnitudes of gasoline-tax rates and registration fees. In New York two different levels of required revenue were postulated.



Table 4. - Comparison of tax-study findings for selected truck combinations indicating the range of required tax payments

| Class interval of required<br>tax payment | Number of tax studies                            |  |  |
|---|--|--|--|
|   | No. 5:<br>3-axle<br>tractor-<br>semi-<br>trailer | No. 6:<br>4-axle<br>tractor-<br>semi-<br>trailer | No. 8:<br>5-axle<br>tractor-<br>semi-<br>trailer |
| Dollars                                   |  |  |  |
| 500-749-----                              | 1  | -----  | -----  |
| 750-999-----                              | * 6  | -----  | -----  |
| 1,000-1,249-----                          | 3  | 6  | -----  |
| 1,250-1,499-----                          | -----  | 2  | -----  |
| 1,500-1,999-----                          | 1  | * 2  | 4  |
| 2,000-2,999-----                          | 2  | 2  | * 3  |
| 3,000 and over-----                       | -----  | 1  | 2  |

\* Indicates interval for Montana Studies





"A glance at each column of table 3, will disclose a wide disparity among the States in the study findings for the several selected vehicles. Similar glances along successive lines will reveal no consistent pattern of upward variation with size of vehicle. Several reasons can be definitely assigned to account for this dispersion. The principal reason, perhaps, lies in the relative magnitudes of the highway programs which the various recommended tax schedules were designed to finance. States differ in the relative extent of their highway needs, and also in the adequacy of the programs designed to meet those needs." A PERTINENT NOTE IS THAT MONTANA RATES HAVE BEEN SCALED TO A TOTAL STATE WIDE PROGRAM FOR ALL ROADS AND STREETS OVER A 20 YEAR PERIOD. "The number of motor vehicles in relation to the required revenues affects the general level of user taxation; and the composition of the vehicle population with respect to size and weight may affect the charges to the several size groups." THIS IS PARTICULARLY OF CONCERN IN MONTANA WHERE LARGE MILEAGE AND LOW PER VEHICLE MILE USAGE TENDS TO PLACE A HEAVY PER VEHICLE MILE RESPONSIBILITY ON ALL USERS.

"The study findings are naturally affected by the particular method (incremental, ton-mile, etc.) used for the assignment of tax responsibility. There is a tendency also for investigators, when converting the tax-study results into the form of a recommended schedule of tax rates, to modify, in the interest of simplicity and uniformity, the findings derived from the strict application of theory or for mulated procedure.

"In spite of the apparent shotgun scatter of study findings, some rudiments of a pattern, or at least a discernible central tendency, be-



gin to emerge when the recommended payments for a given vehicle are grouped by intervals as shown in table 4." MONTANA'S INTERVAL HAS BEEN INSERTED IN TABLE 4. IT WILL BE NOTED THAT IT IS NEVER IN THE MAXIMUM GROUP AND TENDS TOWARD THE MEDIAN GROUP.

"It will be observed that for all three truck combinations the modal class interval (the interval within and about which the findings cluster) lies in the lower part of the total range of values covered by the study findings.

"Turning to the lighter weight vehicles, we find that 6 out of 12 tax studies recommended annual passenger-car payments lying within the interval \$37.50 to \$50." THE MONTANA SCHEDULE OF \$49 IS NEAR THE TOP OF THIS INTERVAL. "In the case of the pickup truck the central tendency is weak, the recommendations being distributed rather evenly over a range extending from \$26 to \$65." MONTANA AT \$52 TENDS TOWARD THE UPPER REACHES OF THE INTERVAL. "So also with the bus, for which the findings are widely scattered over a range from \$549 to \$2,063. By contrast 7 out of 12 tax studies recommend annual payments for the 2-axle, 6-tire truck lying between \$200 and \$300." MONTANA, AT \$160, IS SOMEWHAT ON THE LOW SIDE AT THIS POINT BUT NOT GREATLY BELOW THE MEDIAN OF \$182.

"In table 5 the study findings are expressed in required user-tax payments per mile. The range of variation among the several vehicle classes is narrowed by the elimination of the mileage factor. From State To State the pattern is unchanged by this conversion, and comparisons would reveal the same central tendency.



Table 6a - Total user-tax payments per ton-mile (in cents) for selected vehicles under tax-study recommendations

| State                 | Year<br>tax<br>study<br>published | Method <sup>1</sup><br>used | Single-unit trucks       |       |              |       |               |       |              |       | Truck combinations       |       |              |       |              |       |              |       | No. 8: Tractor-<br>semitrailer-<br>trailer |       |              |       |
|-----------------------|-----------------------------------|-----------------------------|--------------------------|-------|--------------|-------|---------------|-------|--------------|-------|--------------------------|-------|--------------|-------|--------------|-------|--------------|-------|--|-------|--------------|-------|
|                       |                                   |                             | No. 1 Passen-<br>ger car |       |              |       | No. 2: Pickup |       |              |       | No. 3: 2-axle,<br>6-tire |       |              |       | No. 4: Bus   |       |              |       | Tractor-semi-<br>trailer                   |       |              |       |
|                       |                                   |                             | Pay-<br>ment             | Index | Pay-<br>ment | Index | Pay-<br>ment  | Index | Pay-<br>ment | Index | Pay-<br>ment             | Index | Pay-<br>ment | Index | Pay-<br>ment | Index | Pay-<br>ment | Index | Pay-<br>ment                               | Index | Pay-<br>ment | Index |
| California            | 1946                              | T                           | 0.139                    | 1.00  | 0.151        | 1.02  | 0.145         | 0.97  | 0.129        | 0.93  | 0.116                    | 0.83  | 0.114        | 0.62  | 0.098        | 0.71  | 0.103        | 0.76  |  |       |              |       |
| Colorado              | 1950                              | T                           | .106                     | 1.00  | .256         | .97   | .307          | 1.01  | .259         | .85   | .319                     | 1.05  | .311         | 1.02  | .302         | .99   | .299         | .34   |  |       |              |       |
| Illinois              | 1948                              | T                           | .222                     | 1.00  | .266         | 1.20  | .270          | 1.25  | .144         | .65   | .153                     | .69   | .124         | .56   | .087         | .37   | .063         | .37   |  |       |              |       |
| Louisiana             | 1955                              | IC                          | .253                     | 1.00  | .240         | .96   | .232          | .91   | .149         | .58   | .123                     | .48   | .122         | .48   | .093         | .39   | (4)          |       |  |       |              |       |
| Minnesota             | 1936                              | I                           | .200                     | 1.00  | .225         | .15   | .208          | .76   | .106         | 1.00  | .162                     | .56   | .103         | .64   | (1)          |       | (4)          |       |  |       |              |       |
| New York <sup>2</sup> | 1950                              | T                           | .260                     | 1.00  | .339         | 1.40  | .302          | 1.16  | .196         | .72   | .203                     | .76   | .266         | 1.02  | (4)          |       | (4)          |       |  |       |              |       |
| New York <sup>3</sup> | 1950                              | T                           | .122                     | 1.00  | .135         | 1.11  | .112          | .92   | .081         | .66   | .080                     | .66   | .101         | .83   | (4)          |       | (4)          |       |  |       |              |       |
| Ohio <sup>4</sup>     | 1951                              | S                           | .211                     | 1.00  | .305         | 1.43  | .176          | .84   | .164         | .76   | .136                     | .54   | .135         | .64   | .097         | .46   | .126         | .61   |  |       |              |       |
| Ohio                  | 1952                              | I                           | .216                     | 1.00  | .198         | .92   | .219          | 1.01  | .206         | .95   | .131                     | .61   | .135         | .62   | .117         | .63   | .118         | .55   |  |       |              |       |
| Utah                  | 1950                              | T                           | .168                     | 1.00  | .187         | 1.02  | .167          | .91   | (7)          |       | .110                     | .60   | .116         | .63   | .102         | .56   | .101         | .55   |  |       |              |       |
| Washington            | 1948                              | T                           | .222                     | 1.00  | .107         | .94   | .166          | .74   | .145         | .65   | .104                     | .47   | .106         | .48   | .110         | .50   | .098         | .44   |  |       |              |       |
| Montana               | 1956                              | I                           | .272                     | 1.00  | .270         | .99   | .168          | 0.62  | .118         | 0.43  | .120                     | 0.44  | .150         | 0.50  | .157         | 0.58  | .158         | 0.58  |  |       |              |       |

1 Method used to allocate tax responsibility indicated thus: I=Incremental; IC=(incremental based on findings of Incremental) and cost-function solutions; S=Standard cost; T=Ton mile.

2 Motor-fuel tax rate of 6.5 cents per gallon and low registration fees.

3 Motor-fuel tax rate of 6.5 cents per gallon and high registration fees.

4 Vehicle combination not permitted by State size and weight regulations.

5 Maximum expenditure program with motor-fuel tax rate of 4 cents per gallon.

6 "Optimum" or "current" (1947) expenditure level with motor-fuel tax rate of 3 cents per gallon.

7 No recommendation.

8 Figures in these lines not used in arriving at median values for Table 2

Table 7a - Total user-tax payments per year (in dollars) for selected vehicles at 1955 tax rates in selected States and 1956 in Montana

| State      |     | Single-unit trucks       |       |              |       |               |       |              |       | Truck combinations       |       |              |       |              |       |              |       | Tractor-semi-<br>trailer |       |              |       | No. 8: Tractor-<br>semitrailer-<br>trailer |       |  |  |
|------------|-----|--------------------------|-------|--------------|-------|---------------|-------|--------------|-------|--------------------------|-------|--------------|-------|--------------|-------|--------------|-------|--------------------------|-------|--------------|-------|--|-------|--|--|
|            |     | No. 1 Passen-<br>ger car |       |              |       | No. 2: Pickup |       |              |       | No. 3: 2-axle,<br>6-tire |       |              |       | No. 4: Bus   |       |              |       | No. 7: Truck-<br>trailer |       |              |       | No. 8: Tractor-<br>semitrailer-<br>trailer |       |  |  |
|            |     | Pay-<br>ment             | Index | Pay-<br>ment | Index | Pay-<br>ment  | Index | Pay-<br>ment | Index | Pay-<br>ment             | Index | Pay-<br>ment | Index | Pay-<br>ment | Index | Pay-<br>ment | Index | Pay-<br>ment             | Index | Pay-<br>ment | Index | Pay-<br>ment                               | Index |  |  |
| California |     | 4.1                      | 1.00  | 53           | 1.29  | 152           | 3.71  | 734          | 17.90 | 650                      | 15.85 | 806          | 19.66 | 1,232        | 30.05 | 1,230        | 30.00 |                          |       |              |       |  |       |  |  |
| Colorado   | 39  | 1.00                     | 40    | 1.03         | 161   | 4.31          | 1,668 | 12.77        | 1,211 | 31.05                    | 1,529 | 39.21        | 2,505 | 64.23        | 2,527 | 67.36        |       |                          |       |              |       |  |       |  |  |
| Idaho      | 51  | 1.00                     | 48    | .94          | 19    | 3.75          | 979   | 19.20        | 1,002 | 21.22                    | 1,415 | 27.75        | 2,359 | 64.25        | 2,491 | 68.84        |       |                          |       |              |       |  |       |  |  |
| Illinois   | 38  | 1.00                     | 46    | 1.21         | 223   | 5.87          | 864   | 22.79        | 1,039 | 27.26                    | 1,265 | 33.29        | 1,860 | 48.95        | 1,937 | 50.97        |       |                          |       |              |       |  |       |  |  |
| Louisiana  | 42  | 1.00                     | 66    | 1.10         | 190   | 4.52          | 917   | 21.63        | 834   | 19.66                    | 1,007 | 23.98        | 1,640 | 36.29        | (1)   |              |       |                          |       |              |       |  |       |  |  |
| Minnesota  | 51  | 1.00                     | 51    | 1.00         | 154   | 2.02          | 1,768 | 34.27        | 756   | 14.22                    | 986   | 19.33        | (1)   |              | (1)   |              | (1)   |                          |       |              |       |  |       |  |  |
| New York   | 37  | 1.00                     | 46    | 1.26         | 162   | 4.92          | 1,657 | 12.62        | 881   | 23.61                    | 1,220 | 32.97        | (1)   |              | (1)   |              | (1)   |                          |       |              |       |  |       |  |  |
| Ohio       | 39  | 1.00                     | 62    | 1.63         | 208   | 5.47          | 865   | 22.76        | 1,057 | 27.42                    | 1,467 | 31.61        | 2,632 | 69.26        | 2,542 | 66.89        |       |                          |       |              |       |  |       |  |  |
| Oregon     |     | 4.3                      | 1.00  | 53           | 1.23  | 216           | 5.02  | 1,187        | 27.60 | 1,304                    | 30.33 | 1,765        | 41.05 | 3,050        | 70.93 | 3,225        | 75.00 |                          |       |              |       |  |       |  |  |
| Utah       | 33  | 1.00                     | 33    | 1.00         | 124   | 3.76          | 812   | 24.61        | 546   | 16.55                    | 691   | 20.94        | 1,219 | 36.94        | 1,165 | 35.30        |       |                          |       |              |       |  |       |  |  |
| Washington | 4.1 | 1.00                     | 46    | 1.27         | 159   | 3.85          | 743   | 14.12        | 675   | 16.46                    | 944   | 21.02        | 1,594 | 34.48        | 3,446 | 35.27        |       |                          |       |              |       |  |       |  |  |
| Montana    |     | 4.9                      | 1.00  | 52           | 1.06  | 160           | 2.86  | 795          | 16.22 | 715                      | 14.59 | 927          | 14.92 | 1,530        | 31.22 | 3,649        | 33.65 |                          |       |              |       |  |       |  |  |

1 Vehicle combination not permitted by State size and weight regulations



"Recommended payments per ton-mile are shown in table 6. The ton-miles used in computing this table are the products of assumed annual mileage and maximum gross weight. Had average operating weights been used instead of maximum gross weights, the payments for the heavier vehicles would have been higher and the indexes relative to the passenger-car value would generally have been nearer to unity.

"There is a general, although by no means entirely consistent, tendency for the recommended payments per ton-mile to decline as the size of vehicle increases. This trend is evidenced even in those States where a gross ton-mile solution was used. An exception occurs in the case of Colorado, where the values hover about 3 mills per ton-mile through out the range of vehicle size.

"Although size and weight as well as miles traveled are important considerations in motor-vehicle taxation, there is no scientific basis for the contention that such taxes should be made directly proportional to gross ton-miles. For example, the required thickness of a slab or beam varies as the square root of the load, rather than directly with the load itself. Numerous students of the subject have rejected the ton-mile theory and have resorted to the incremental solution, which attempts to assign tax responsibility in proportion to the costs occasioned by the traffic of vehicles of different sizes.

#### STATE-BY-STATE COMPARISONS OF TAX

#### PAYMENTS AT 1955 RATES

"Tables 7, 9, and 10 give corresponding values of actual required



Table 8.- Comparison of tax payments per year required of a 50,000-pound, 4 axle tractor-semitrailer (No. 6) under tax study recommendations and under 1955 rates in nine States and 1956 in Montana

| State                       | Tax payments per year                |  | Excess of<br>tax-study<br>recom-<br>mendations<br>over 1955<br>payments |
|-----------------------------|--------------------------------------|--|---|
|                             | Tax<br>study<br>recom-<br>mendations | Required<br>tax pay-<br>ments at<br>1955 rates |   |
| California-----             | \$1,135                              | \$ 806   | \$ 329  |
| Colorado <sup>1</sup> ----- | 3,112                                |  | 1,583   |
| Colorado <sup>2</sup> ----- | 2,921                                | 1,529  | 1,392   |
| Illinois-----               | 1,241                                | 1,265  | -24   |
| Louisiana-----              | 1,217                                | 1,007  | 210   |
| Minnesota-----              | 1,833                                | 986  | 847   |
| New York <sup>3</sup> ----- | 2,639                                |  | 1,419   |
| New York <sup>4</sup> ----- | 1,010                                | 1,220  | -210  |
| Ohio <sup>5</sup> -----     | 1,351                                |  | -116  |
| Ohio <sup>6</sup> -----     | 1,353                                | 1,467  | -114  |
| Utah -----                  | 1,156                                | 691  | 465   |
| Washington-----             | 1,061                                | 944  | 117   |
| Montana -----               | 1,577                                | 927  | 650   |

1 Motor-fuel tax rate of 8.5 cents per gallon and low registration fees.

2 Motor-fuel tax rate of 6.5 cents per gallon and high registration fees.

3 Maximum expenditure program with motor-fuel tax rate of 4 cents per gallon.

4 Continuation of "current" (1949) expenditure level with motor-fuel tax rate of 3 cents per gallon.

5 Standard-cost method used to allocate tax responsibility.

6 Incremental method used to allocate tax responsibility.



tax payments at 1955 rates, per year, per mile, and per ton-mile, respectively. Values for Idaho and Oregon are given in addition to those for the nine tax-study States." IN THE CASE OF MONTANA PAYMENTS AT 1956 RATES HAVE BEEN CALCULATED. THIS YEAR WAS USED SINCE 1955 RATES WERE SUPERSEDED BY A HIGHER TAX STRUCTURE FOR COMMERCIAL VEHICLES.

"The appearance and general import of these tables are not unlike what is found in the tax-study tables, 3, 5, and 6. It is of interest nonetheless to compare the actual required tax payments in 1955 with the recommendations of the several tax studies. A single example, that of the 50,000-pound, 4-axle tractor-semitrailer- a widely used type of combination will suffice. The comparison is given in table 8 for the required tax payments per year." THE COMPARISON FOR MONTANA IS NOT ENTIRELY VALID. IT ASSUMES ONLY ONE TRAILER WOULD HAVE BEEN REGISTERED IN 1956 FOR THE ONE PULLING UNIT. ACTUALLY THE RATIO OF TRAILERS TO TRACTORS IS MORE THAN 1 TO 1. SINCE TAX STUDY RECOMMENDATIONS ARE BASED ON THE TOTAL LEVY BEING PLACED ON THE PULLING UNIT ANY NUMBER OF TRAILERS IN THE FLEET COULD BE QUALIFIED FOR USE WITH THE TRACTOR MERELY BY PAYING A \$10 LICENSE FEE.

"Quite evidently the general trend is for the tax laws enacted by the State legislatures to fall short of the tax-study recommendations. In 8 of the 12 comparisons shown the required payments are less than those recommended. In Illinois and Ohio the required payments somewhat exceed the tax-study recommendations. In New York the tax-study



Table 9. - Annual user-tax payments per ton-mile (in cents) for selected vehicles at 1954 tax rates in selected States and 1950 in Montana

| State          | Single-unit trucks    |                       |               |               |               |               |               |                |                |                 | Truck combinations   |                 |                 |                 |                 |                                     |                 |  |  |  |
|----------------|-----------------------|-----------------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------------|----------------------|-----------------|-----------------|-----------------|-----------------|-------------------------------------|-----------------|--|--|--|
|                | No. 1: Passenger cars |                       |               |               |               | No. 4: Bus    |               |                |                |                 | Tractor-semi-trailer |                 |                 |                 |                 | No. 8: Tractor-semi-trailer-trailer |                 |  |  |  |
|                | No. 2: Pickup         | No. 3: 2-axle, 6-tire | No. 5: 3-axle | No. 6: 4-axle | No. 7: 5-axle | No. 8: 6-axle | No. 9: 7-axle | No. 10: 8-axle | No. 11: 9-axle | No. 12: 10-axle | No. 13: 11-axle      | No. 14: 12-axle | No. 15: 13-axle | No. 16: 14-axle | No. 17: 15-axle | No. 18: 16-axle                     | No. 19: 17-axle |  |  |  |
| California     | 0.411                 | 1.00                  | 0.603         | 1.90          | 1.50          | 1.45          | 1.60          | 1.33           | 1.711          | 3.491           | 2.015                | 4.57            | 1.404           | 5.59            | 2.460           | 5.58                                |                 |  |  |  |
| Colorado       | 0.419                 | 1.00                  | 0.503         | 1.91          | 1.60          | 1.41          | 1.36          | 1.796          | 3.187          | 2.823           | 4.12                 | 1.610           | 5.16            | 2.525           | 5.25            |                                     |                 |  |  |  |
| Illinois       | 0.419                 | 1.00                  | 0.600         | 1.90          | 1.910         | 1.49          | 1.948         | 3.37           | 1.867          | 5.279           | 3.539                | 6.46            | 1.718           | 8.61            | 4.912           | 7.09                                |                 |  |  |  |
| Illinois--1950 | 0.412                 | 1.00                  | 0.575         | 1.91          | 2.230         | 5.65          | 1.732         | 6.223          | 2.728          | 6.66            | 3.103                | 7.73            | 3.720           | 7.10            | 3.76            | 7.47                                |                 |  |  |  |
| Louisiana      | 0.502                 | 1.00                  | 0.575         | 1.97          | 1.930         | 6.20          | 1.836         | 6.06           | 2.139          | 6.426           | 2.531                | 5.57            | 2.010           | 6.37            | (1)             | ---                                 |                 |  |  |  |
| Minnesota      | 0.416                 | 1.00                  | 0.636         | 1.16          | 1.360         | 2.8           | 1.796         | 6.38           | 1.709          | 3.653           | 2.465                | 6.30            | (1)             | ---             | (1)             | ---                                 |                 |  |  |  |
| New York       | 0.419                 | 1.00                  | 0.575         | 1.96          | 1.35          | 5.57          | 1.736         | 7.35           | 2.311          | 5.42            | 3.010                | 7.66            | (1)             | ---             | (1)             | ---                                 |                 |  |  |  |
| Ohio           | 0.407                 | 1.00                  | 0.775         | 1.9           | 2.900         | 5.59          | 1.730         | 6.223          | 2.728          | 6.60            | 3.666                | 8.77            | 5.264           | 12.3            | 5.048           | 12.43                               |                 |  |  |  |
| Oregon         | 0.402                 | 1.00                  | 0.603         | 1.44          | 2.160         | 6.46          | 2.376         | 5.14           | 3.423          | 7.43            | 4.433                | 7.55            | 3.100           | 13.20           | 5.430           | 13.76                               |                 |  |  |  |
| Utah           | 0.412                 | 1.00                  | 0.713         | 1.10          | 1.310         | 3.49          | 1.626         | 4.57           | 1.437          | 4.05            | 1.720                | 4.57            | 2.148           | 5.56            | 2.330           | 5.56                                |                 |  |  |  |
| Washington     | 0.404                 | 1.00                  | 0.600         | 1.36          | 1.580         | 5.51          | 1.600         | 3.37           | 1.776          | 4.03            | 2.560                | 5.35            | 3.128           | 7.23            | 2.692           | 6.56                                |                 |  |  |  |
| Montana--1950  | 0.407                 | 1.00                  | 0.649         | 1.23          | 1.397         | 2.65          | 1.591         | 4.02           | 1.522          | 3.57            | 2.317                | 4.40            | 3.050           | 5.83            | 3.299           | 6.26                                |                 |  |  |  |

1 Vehicle combination not permitted by State size and weight regulations

Table 10. - Total user-tax payments per ton-mile (in cents) for selected vehicles at 1954 tax rates in selected States and 1950 in Montana

| State         | Single-unit trucks    |                       |               |               |               |               |               |                |                |                 | Truck combinations   |                 |                 |                 |                 |                                     |                 |  |  |  |
|---------------|-----------------------|-----------------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|-----------------|----------------------|-----------------|-----------------|-----------------|-----------------|-------------------------------------|-----------------|--|--|--|
|               | No. 1: Passenger cars |                       |               |               |               | No. 4: Bus    |               |                |                |                 | Tractor-semi-trailer |                 |                 |                 |                 | No. 8: Tractor-semi-trailer-trailer |                 |  |  |  |
|               | No. 2: Pickup         | No. 3: 2-axle, 6-tire | No. 5: 3-axle | No. 6: 4-axle | No. 7: 5-axle | No. 8: 6-axle | No. 9: 7-axle | No. 10: 8-axle | No. 11: 9-axle | No. 12: 10-axle | No. 13: 11-axle      | No. 14: 12-axle | No. 15: 13-axle | No. 16: 14-axle | No. 17: 15-axle | No. 18: 16-axle                     | No. 19: 17-axle |  |  |  |
| California    | 0.227                 | 1.00                  | 0.276         | 1.22          | 0.160         | 0.70          | 0.109         | 0.48           | 0.098          | 0.38            | 0.081                | 0.36            | 0.072           | 0.32            | 0.066           | 0.30                                |                 |  |  |  |
| Colorado      | 0.216                 | 1.00                  | 0.208         | .96           | 1.77          | 1.02          | 2.27          | 1.14           | 1.159          | .74             | 1.153                | .71             | 1.147           | .68             | 1.146           | .63                                 |                 |  |  |  |
| Idaho         | 0.292                 | 1.00                  | 0.250         | .89           | 2.03          | .71           | 1.445         | .51            | 1.122          | .50             | 1.142                | .50             | 1.139           | .49             | 1.136           | .47                                 |                 |  |  |  |
| Illinois      | 0.211                 | 1.00                  | 0.240         | 1.14          | 2.235         | 1.11          | 1.128         | .61            | 1.136          | .64             | 1.127                | .60             | 1.109           | .52             | 1.106           | .51                                 |                 |  |  |  |
| Louisiana     | 0.203                 | 1.00                  | 0.240         | 1.03          | 2.00          | .86           | 1.136         | .58            | 1.110          | .47             | .101                 | .43             | 0.085           | .36             | (1)             | ---                                 |                 |  |  |  |
| Minnesota     | 0.202                 | 1.00                  | 0.266         | .94           | 1.62          | .57           | 1.253         | .90            | .099           | .33             | .079                 | .35             | (1)             | ---             | (1)             | ---                                 |                 |  |  |  |
| New York      | 0.205                 | 1.00                  | 0.240         | 1.17          | 1.92          | .96           | .069          | .34            | .116           | .51             | .122                 | .60             | (1)             | ---             | (1)             | ---                                 |                 |  |  |  |
| Ohio          | 0.211                 | 1.00                  | 0.323         | 1.53          | 2.19          | 1.06          | 1.128         | .61            | 1.139          | .66             | 1.147                | .70             | 1.155           | .73             | 1.141           | .67                                 |                 |  |  |  |
| Oregon        | 0.239                 | 1.00                  | 0.276         | 1.16          | 2.27          | .95           | 1.176         | .74            | 1.172          | .72             | 1.177                | .74             | 1.179           | .75             | 1.179           | .75                                 |                 |  |  |  |
| Utah          | 0.193                 | 1.00                  | 0.172         | .96           | 1.33          | .72           | 1.120         | .46            | .072           | .39             | .069                 | .38             | .072            | .39             | .065            | .36                                 |                 |  |  |  |
| Washington    | 0.227                 | 1.00                  | 0.290         | 1.10          | 1.66          | .73           | .110          | .48            | .089           | .39             | .094                 | .41             | .094            | .41             | .080            | .35                                 |                 |  |  |  |
| Montana--1950 | 0.272                 | 1.00                  | 0.270         | 0.97          | 1.47          | 0.54          | .118          | 0.43           | .094           | 0.35            | .093                 | 0.34            | .090            | 0.33            | .092            | 0.34                                |                 |  |  |  |

1 Vehicle combination not permitted by State size and weight regulations.

Table 11. -- Total annual charges, per vehicle mile charges and ton-mile charges in Montana under proposed schedule and under rates in effect in 1954

Fees Proposed under Incremental Study

| Vehicle | Weight<br>Tons<br>Tounds | Annual<br>Miles | Miles per<br>gallon | Annual<br>fuel (gals.) | Fuel Tax<br>at 7¢ gal. | Registration<br>fee | Other flat<br>fees 1/ | Total<br>annual<br>charge |          | mileage<br>charge | ton mile<br>charge |
|---------|--------------------------|-----------------|---------------------|------------------------|------------------------|---------------------|-----------------------|---------------------------|----------|-------------------|--------------------|
|         |                          |                 |                     |                        |                        |                     |                       | 1954                      | 1955     |                   |                    |
| 1       | 1.96                     | 3,700           | 5,300               | 14.7                   | 557                    | 30.00               | 10                    | 68.09                     | 6.5269   | 0.2715            |                    |
| 2       | 2.46                     | 4,100           | 5,000               | 15.6                   | 513                    | 35.01               | 10                    | 64.00                     | 61.01    | 0.4466            | 0.2706             |
| 3       | 9.50                     | 15,000          | 16,000              | 7.6                    | 1,202                  | 50.74               | 10                    | 40.00                     | 156.74   | 1.5274            | 0.1610             |
| 4       | 13.50                    | 27,000          | 30,000              | 5.3                    | 9,436                  | 64.30               | 10                    | 125.00                    | 755.30   | 1.5000            | 0.1176             |
| 5       | 26.00                    | 40,000          | 39,000              | 6.6                    | 7,917                  | 55.01               | 20                    | 141.00                    | 715.10   | 1.4821            | 0.0961             |
| 6       | 25.60                    | 50,000          | 50,000              | 6.2                    | 9,524                  | 66.67               | 20                    | 240.00                    | 596.67   | 2.3167            | 0.0652             |
| 7       | 34.00                    | 60,000          | 50,000              | 3.5                    | 14,297                 | 1,000.02            | 20                    | 510.00                    | 1,530.02 | 3.0600            | 0.0300             |
| 8       | 35.00                    | 72,000          | 50,000              | 3.6                    | 14,705                 | 1,029.35            | 20                    | 500.00                    | 1,640.35 | 3.2997            | 0.0216             |

1/ Flat Fee schedule used; Mileage rates would provide somewhat similar rates.



findings based on continuation of the current expenditure level are lower than the required tax payments at 1955 rates; but the findings based on highway needs (the "maximum expenditure program") are much greater than the actual required payments. The Louisiana report was released only recently and there has been insufficient time for the legislature to deal with its recommendations. In Minnesota no legislative action had been taken subsequent to the tax-study findings.

"State-by-State comparisons of required tax payments per mile are set forth in table 9. The comparisons on a ton-mile basis are given in table 10. The downward trend in payments per ton-mile is notable. There is, however, a tendency, in States where weight-distance or similar taxes have been enacted, for the rates per ton-mile on truck combinations to hold steady, or even to increase slightly with increasing size. This trend may be observed in the amounts for Colorado, Idaho, New York, Ohio, and Oregon.

#### SUMMARY

"The results of this brief review of State tax-study recommendations regarding the rates of user-tax payments by vehicles of different sizes and weights are summarized in the following numbered paragraphs:

1. "Median values of tax-study findings range from \$40 per year for a light passenger car to \$1,836 per year for a 5-axle tractor semi-trailer-trailer combination; and from 0.43 to 3.67 cents per mile of travel." TAX STUDY FINDINGS FOR MONTANA FALL NEAR THE MEDIAN EVEN THOUGH PER VEHICLE MILE COSTS MUST OBVIOUSLY BE RELATIVELY HIGH IN THIS STATE. THE MONTANA RATES DO NOT GO TO EXTREMES, THEY ARE NEVER



BELOW THE MINIMUM NOR ABOVE THE MAXIMUM OF THE 10 STATES STUDIED.

2. "With respect to the rate of recommended tax payments per gross ton-mile, the trend of median tax-study values is downward. The variation among the vehicles selected for study extends from 2.2 mills per ton-mile for the light passenger car to 1.2 mills for the 4-axle tractor-semitrailer and 1.0 mill for the 5-axle tractor-semi-trailer-trailer." MONTANA FOLLOWS THE DOWNWARD TREND IN TON-MILE CHARGES BUT THERE IS A TENDENCY TO FLATTEN OUT AT THE UPPER THREE WEIGHT GROUPS FOR CURRENT AND RECOMMENDED TAX STRUCTURES.

3. "There is a wide variation from State to State in the recommended user-tax payments for each of the eight vehicles selected for comparison. In spite of this dispersion there is a marked central tendency, particularly among the heavy vehicle combinations, in that the study findings tend to group within relatively narrow intervals. Thus, for the 3-axle tractor-semitrailer, 5 out of 12 studies recommended annual tax payments within the range \$750 to \$1,000. In 6 out of 12 studies the recommended payment for the 4-axle tractor-semi-trailer lies between \$1,000 and \$1,250 per year. For the largest combination in the group, the 5-axle tractor-semitrailer-trailer, 4 out of 8 studies recommended annual tax payments lying between \$1,500 and \$2,000." THE POSITION OF MONTANA VEHICLES IN THIS ARRAY IS INDICATED BY FOOTNOTE ON TABLE 4.

4. "Comparison of the tax-study findings with the payments required under 1955 tax rates reveals a general tendency (with exceptions) for the tax laws enacted by State legislatures to fall short



of tax-study recommendations in the payments required of heavy motor vehicles and combinations. For example, 8 out of 12 tax-study findings recommended greater user-tax payments for the 4-axle tractor-semitrailer than were imposed under the corresponding 1955 tax laws in the nine States in which the Studies were made."

FIGURE 3 SHOWS A SIGNIFICANT COMPARISON OF MEDIAN 1955 USER RATES IN EFFECT IN THE 11 STATES STUDIED WITH RATES PROPOSED UNDER MONTANA'S FACT FINDING COMMITTEE STUDY. THE COMPARISON BY INDICES RATHER THAN ACTUAL VALUES IS DESIRABLE BECAUSE OF THE RELATIVELY HIGH USER CHARGES DEMANDED OF PASSENGER CARS IN MONTANA. COMPARISON OF MONTANA'S 1956 CHARGES WITH MEDIAN CHARGES IN THE OTHER 11 STATES (SEE FIGURES 2 AND 2A) INDICATES MONTANA IS RELATIVELY LOW IN ALL WEIGHT BRACKETS EXCEPT THE PASSENGER CAR AND PERHAPS THE LIGHTEST TRUCK. FIGURE 3 INDICATES HOW NEARLY THE MONTANA TAX STUDY RECOMMENDATIONS WOULD REMEDY THIS BY BRINGING MONTANA CLOSE TO THE MEDIAN.



FIGURE 3

INDICES UNDER TAX PAYMENTS AT 1955 RATES IN ELEVEN  
STATES COMPARED WITH MONTANA STUDY RECOMMENDATIONS

